

Journal of Gastric Cancer's Promotion to International Journal from the Perspective of Bibliometric Analysis

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Purpose: The aim was to verify if changing the Journal of Gastric Cancer (JGC) to only English (starting in December 2010) was successful based on bibliometrics.

Materials and Methods: The following indicators were retrieved or calculated from the journal homepage and the Web of Science Core Collection on January 30, 2016: the number of citable articles per year; the number of original articles funded; the national origins of the editorial board members and authors; the total citations; the impact factors; the national origins of authors citing the journal; the source titles of articles citing the journal; and the Hirsch index.

Results: From 2011 to 2015, the number of citable articles per year was 40, 41, 39, 39, and 40. The proportion of original articles funded was 39 out of 113 articles (34.5%). The editorial board members were from seven countries. The authors were from 11 countries. The total citations increased from 1 in 2011 to 245 in 2015. From 2013 to 2015, the impact factors (without self-citations) were 1.42, 1.36, and 1.60. In 2014, the value 1.60 corresponded to the ranking of 157 out of 210 oncology journals (74.8%); it was cited from 46 countries. Top-ranking countries of citing authors were China (171), Korea (158), and Japan (75). The number of source titles citing the journal was more than 100. The Hirsch index was 12.

Conclusions: The English-only language policy, which started in December 2010, was successful in promoting the JGC to international levels from the perspective of bibliometric analysis.

Key Words: Bibliometrics; Journal impact factor; Language; Korea; Periodicals as topic

Introduction

The Journal of Gastric Cancer (JGC) has been the official journal of the Korean Gastric Cancer Association since 2001. However, from 2001 to June 2010, the title was the Journal of the Korean Gastric Cancer Association. As of December 2010, the society began publishing only in English in order to promote the journal to an international audience.

After changing the language of the text, the journal began to be deposited to PubMed Central (PMC) on November 10, 2011. Furthermore, it became indexed in PubMed at the same time.

In June 2012, the journal started being included in SCOPUS, so that the bibliometric data could be compared to other international journals. Since November 2015, it has been listed in the Emerging Sources Citation Index, a new edition of the Web of Science. The journals listed in this edition were candidate journals; they were under consideration by Thomson Reuters for being accepted in the Science Citation Index Expanded. Furthermore, citation information for the listed journals was presented in the Web of Science Core Collection.

The JGC was scheduled to be reevaluated at the end of 2016. Therefore, another goal was presenting the evidence of the journal's promotion to an international level from the perspective of

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bibliometric analysis.

The results make it possible to find the position of the journal in the international literature network. I would also like to discuss how the momentum of the journal has been affected by being promoted at such a high level.

Materials and Methods

This observational, descriptive study was based on bibliometrics. The following were retrieved or analyzed from the data in the journal's biography, which are available at <http://www.jgc-online.org/> and the Web of Science Core Collection database [cited 2016 Jan 30]: the number of citable and non-citable articles; the number of original articles supported by grants; the editorial board members' national origins; the authors' national origins; the total citations; the impact factors; the citing authors' national origins; the source titles of citing articles; and the Hirsch index (h-index).

Citable articles comprised the publication types of reviews, original articles, case reports, and 'how I do it.' While non-citable articles comprised editorials, special articles, errata, corrigendum, and letters to the editor, the total count was comprised of the number of articles in a given year that cited the journal, regardless of its publication year. The calculation methods of impact factors and the h-index were the same as those used in previous analyses of other journals.^{1,2}

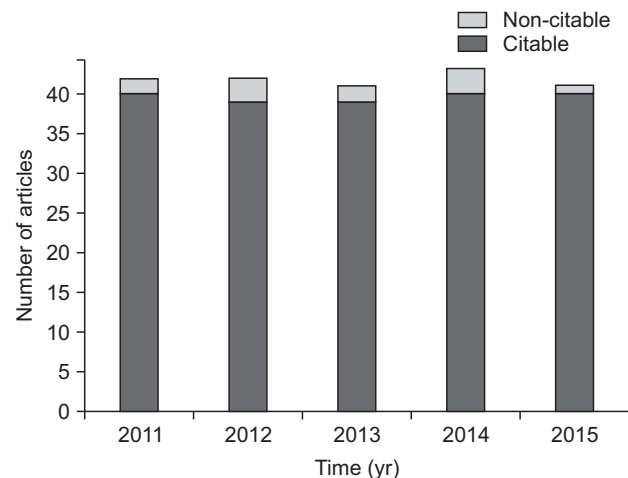


Fig. 1. Number of citable and non-citable articles from the Journal of Gastric Cancer, according to year.

Results

From 2011 to 2015, the number of citable articles per year was 40, 39, 39, 40, and 40. The number of non-citable articles was 2, 3, 2, 3, and 1, respectively (Fig. 1). The proportion of original articles funded was 39 out of 113 articles (34.5%) (Fig. 2). The editorial board members were from seven countries. Out of 34 board members, 27 were from Korea, 2 were from the USA, and 1 each were from China, Germany, Hong Kong, Japan, and Singapore.

Authors were from 11 countries. Out of them, 183 articles were from Korea, 11 were from Japan, and 7 were from USA (Fig. 3). Out of 209 published articles, 136 articles (65.1%) have been cited at least once by 586 Web of Science articles. The total cita-

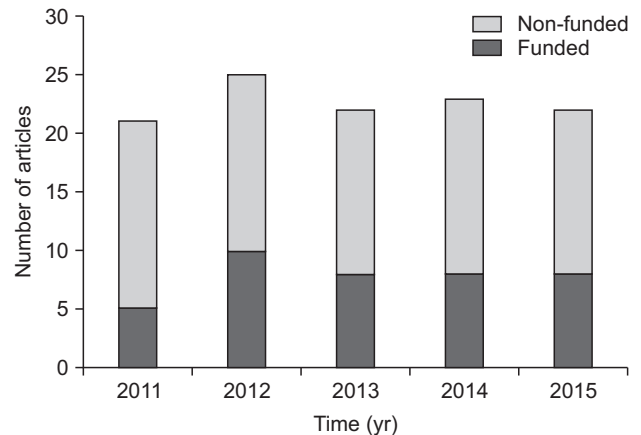


Fig. 2. Number of funded and not-funded articles from the Journal of Gastric Cancer, according to year.

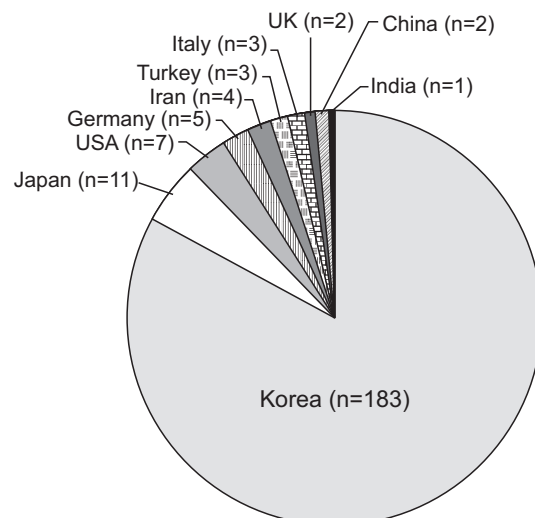


Fig. 3. National origins of authors of 209 articles from the Journal of Gastric Cancer—from 2011 to 2015.

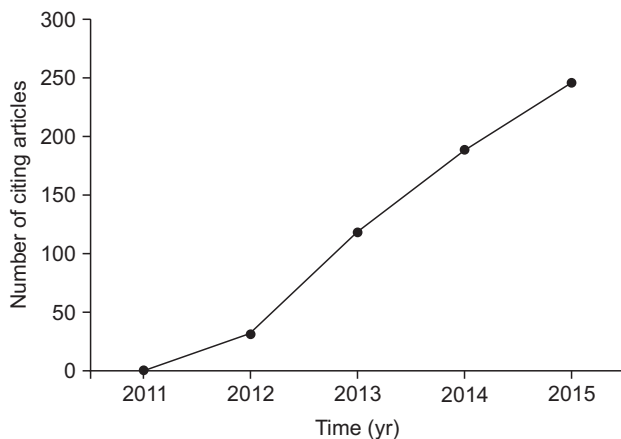


Fig. 4. Total citations of the Journal of Gastric Cancer from 2011 to 2015—from the Web of Science Core Collection [cited 2016 Jan 30].

tions increased from 1 in 2011 to 245 in 2015 (Fig. 4).

From 2013 to 2015, the impact factors without self-citations were 1.42, 1.36, and 1.60. In 2014, the impact factor without self-citations was 1.60, which corresponded to the ranking of 157 out of 210 Journal Citation Report oncology-category journals (74.8%).

The Journal of Gastric Cancer was cited in articles from 46 countries. The top-ranking countries of citing authors were China (171), Korea (158), and Japan (75) (Fig. 5). The number of source titles citing the journal was more than 100; out of these, the source titles that cited the journal 20 times or more were World Journal of Gastroenterology (54), Surgical Endoscopy and Other Interventional Techniques (30), PLoS One (23), and Gastric Cancer (20) (Fig. 6).

The h-index was 12. The 15 types of publications that most frequently cited articles were reviews (6) and original articles (9). The most frequently cited content from articles was the epidemiologic data of gastric cancer in Korea (Table 1). Twenty articles have been cited at least 10 times in Web of Science articles.

Discussion

The above data presents the journal's position in the network of Web of Science Core Collection journals. Out of the above metrics, the proportion of funded original articles is 34.5%; this is evidence that they are high-quality articles because their content was already screened and reviewed by funding agencies.

This rate is comparable to other medical journals in Korea, including Clinics in Orthopedic Surgery (18.4%);² Diabetes & Metabolism Journal (43.9%);³ Clinical and Experimental Reproduc-

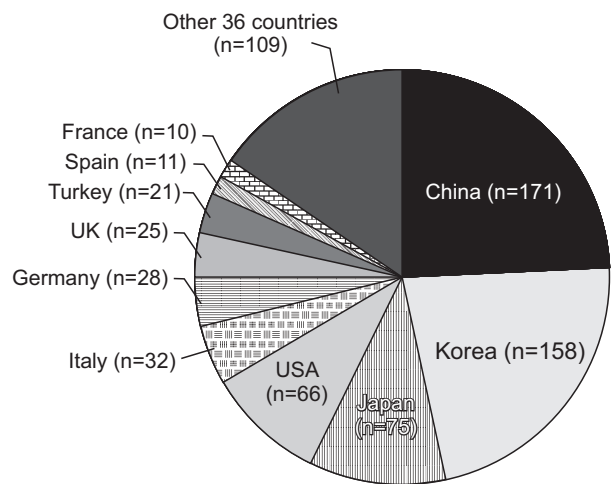


Fig. 5. National origins of authors of who cited the Journal of Gastric Cancer from 2011 to 2015—from the Web of Science Core Collection [cited 2016 Jan 30].

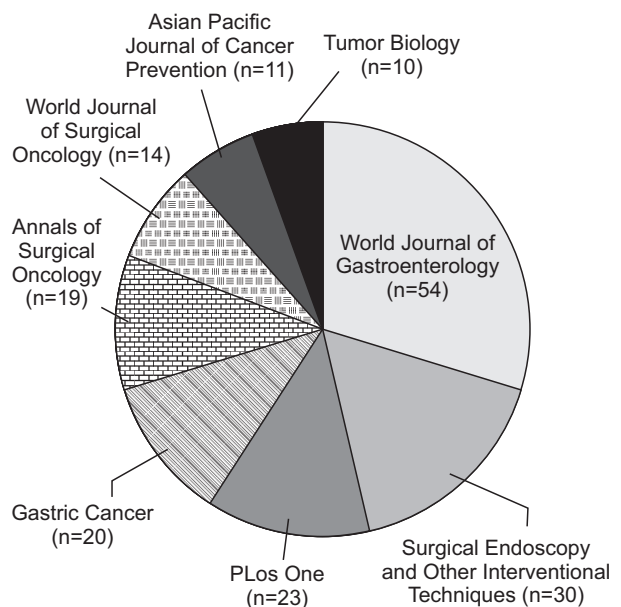


Fig. 6. Nine source titles most frequently citing the Journal of Gastric Cancer from 2011 to 2015 (at least 10 times)—from the Web of Science Core Collection [cited 2016 Jan 30].

tive Medicine (39.8%);⁴ International Neurology Journal (38.6%);⁵ Clinical Endoscopy (38.2%);⁶ Annals of Rehabilitation Medicine, (34.2%);⁷ and Journal of Educational Evaluation for Health Professions (29.0%).⁸

In Korea, cancer is now the top-ranking cause of death, and stomach cancer is the third-leading cause of death due to cancer.⁹ Therefore, there are higher amounts of funds allotted to stomach neoplasm than to other fields. These statistics mean that the journal should be able to recruit high-quality manuscripts.

Table 1. The most frequently cited articles of the Journal of Gastric Cancer from 2001 to 2015—by Web of Science articles and their publication types [cited 2016 Jan 30], which shows a Hirsch index of 12

Ranking	Year	Volume	Page	Title	Frequency	Publication type
1	2011	11	135	Gastric Cancer Epidemiology in Korea	55	Review
2	2011	11	69	Clinicopathological Features and Surgical Treatment of Gastric Cancer in South Korea: The Results of 2009 Nationwide Survey on Surgically Treated Gastric Cancer Patients	53	Original article
3	2012	12	55	Comparisons of Gastric Cancer Treatments: East vs. West	29	Review
4	2011	11	78	Evaluation of the 7th UICC TNM Staging System of Gastric Cancer	23	Review
5	2013	13	136	Robotic versus Laparoscopic versus Open Gastrectomy: A Meta-Analysis	21	Original article
6	2013	13	19	Laparoscopic Surgery for Advanced Gastric Cancer: Current Status and Future Perspectives	16	Review
7	2012	12	156	Comparison of Surgical Outcomes between Robotic and Laparoscopic Gastrectomy for Gastric Cancer: The Learning Curve of Robotic Surgery	15	Original article
8	2011	11	146	Endoscopic Treatment for Early Gastric Cancer	15	Review
9	2013	13	111	Clinical Significance of Preoperative Inflammatory Parameters in Gastric Cancer Patients	15	Original article
10	2011	11	38	Bone Metastasis in Gastric Cancer Patients	13	Original article
11	2013	13	129	Molecular Diagnosis for Personalized Target Therapy in Gastric Cancer	13	Review
12	2011	11	173	Role of 18F-fluoro-2-deoxyglucose Positron Emission Tomography in Gastric GIST: Predicting Malignant Potential Pre-operatively	13	Original article
13	2010	10	247	Comparison of Learning Curves and Clinical Outcomes between Laparoscopy-assisted Distal Gastrectomy and Open Distal Gastrectomy	12	Original article
14	2013	13	26	Totally Laparoscopic Distal Gastrectomy after Learning Curve Completion: Comparison with Laparoscopy-Assisted Distal Gastrectomy	12	Original article
15	2012	12	26	Analysis of Risk Factors for Postoperative Morbidity in Perforated Peptic Ulcer	12	Original article

Editorial members from seven countries on three continents made the data possible—not only the recruitment of articles from international authors, but also reviews of researchers from a variety of countries; this is why there have been articles from 11 countries. If there were more recruitments of editorial board members from more countries, the authors' national origins could be worldwide.

For five years, the number of citable articles a year has been 39 or 40. Although the number of articles is not as great, the frequency of citations dramatically increase from year to year. The fact that 65.1% of total publications has been cited at least once shows the significance of these articles in the research field of gastric cancer; to reiterate, there were 245 citations in 2015. The impact factor without self-citations was 1.60, which corresponded

to 74.8% of oncology categories in the JGC; this was also evidence of successful promotion in the journal network.

If one defines an international journal as having authors from a variety of countries, readers from throughout the world, higher citations from all over the world, and indexing on international databases, then the JGC has accomplished this status. What made this success possible? The first steps were the society's decisions to publish only in English and to deposit the whole text into PMC as an open-access journal (according to the standards of Creative Commons). Another reason why citations soared after starting to deposit onto PMC is that it is the most widely used full-text archive that has free or open access to literature and journals about biomedicine and life sciences.¹⁰

Having a h-index 12 also indicates a brilliant performance

(Table 1). Articles on the epidemiology of gastric cancer has been cited in 55 articles in the Web of Science, and a nationwide survey on surgical gastric-cancer patients has been cited in 53 of these articles; this means that important nation-based epidemiological and statistical results contributed to the impact factors. This important data should be recruited regularly to disclose the present situation of the gastric-cancer epidemiology in specific countries.

Besides the gastric-cancer data from Korea, I recommend recruiting data from other countries. The most frequently cited articles were reviews and articles that are comparable to other medical journals from Korea. Twelve out of fifteen highly cited articles were original articles from Korean Journal of Urology.¹¹

An h-index of 12 from 158 citable articles of JGC can be compared with other medical journals in Korea, including seven with 80 citable articles of Neurointervention;¹ five with 141 citable articles of Journal of Educational Evaluation for Health Professions;⁸ 11 with 930 articles of Korean Journal of Urology;¹¹ and six with 352 articles of Archives of Plastic Surgery.¹² Based on the number of articles, the h-index of JGC is higher than that of others.

To become a PMC journal, a full-text journal article tag suite (JATS) XML (formerly a PMC XML) should be produced.^{13,14} In 2006, I succeeded in producing PMC XML, and I have trained the staffs who works for the journals. As of now, many companies can deal with JATS XML without difficulty. Additionally, some international companies have also begun working for scholarly journals from Korea that produce JATS XML. Therefore, JGC can easily produce JATS XML files. In order for the journal to be internationalized, this technical innovation was an inevitable process.

Besides JATS XML, the digital object identifier (DOI) system, CrossMark, FundRef, and a text and data mining service provided by CrossRef were also essential parts of the journal network that is being propagated and widely used.^{15,16} CrossMark is the system that informed the recentness of articles, because there may be revisions by errata, corrigenda, or retractions. FundRef is the organization that presents the unique ID of a funding agency. The text and data mining service is for researchers who do systemic reviews, data mining, or meta-analysis; it is more convenient for them to be able to open the full text.

Although JGC is equipped with DOI, other services offered by CrossRef should be introduced to the journal. Besides adding CrossRef's services to JGC, I recommend adding both the open researchers and contributors ID (ORCID) and the quick response

(QR) code.^{17,18} ORCID is the unique ID of authors; therefore, editors, reviewers, or readers can see an author's biography and published works through that author's ORCID. The QR code is a convenient way to approach the journal—by taking a picture of the code of the journal or specific article with a QR code reader on a smartphone.

Audio or audio-video data is another new trend of online scholarly journals.¹⁹ It also provides a quick and more interesting approach to journal content. These digital standards are the best ways to connect with readers or authors and the most convenient, fastest ways to make the integrity of research sounder.

In conclusion, from the aspect of bibliometrics, JGC has become an international journal. This accomplishment was possible due to the policy changes in 2010 of only publishing in English and depositing the full-text JATS XML files into PMC. For further promotion, I recommend inviting editorial board members from more countries and adopting a wider variety of digital standards.

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Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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